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AUTHOR Hines, Brainard W.
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ABSTRACT

A discussion and application of the Appalachia Preschool Test (APT) are presented. This test was developed to supplement the standardized instruments in use to measure program performance. It consists of two principal subtests, an introductory interview, and a section measuring logical reasoning and reading skill achievement. It is noted that the APT measures only cognitive program objectives of a curriculum specific nature and concentrates primarily on those which are amenable to multiple choice or sentence completion format. Application of the APT administered during the third year of the Program's development indicate significant treatment effects for the groups viewing the television program and visited by a paraprofessional. The mobile van used appeared to have an effect on the child's ability to establish rapport with the tester and seemed to increase the involvement of older boys in the program. An analysis of the data from the third year's evaluation reinforces conclusions reached in evaluations of the two previous years--that is, the television program provides the "raw material" for the curriculum, while the home visitor effectively reinforces the program's cognitive objectives. (Author/CK)

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Attainment of Cognitive Objectives

by

Brainard W. Hines, Associate Educational Development Specialist
Research and Evaluation

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Attainment of Cognitive Objectives

Introduction

The Appalachia Preschool Test (APT) was developed by AEL to supplement the standardized instruments which were being used to measure program performance. The APT consists of two principal subtests, an introductory interview, and a section measuring logical reasoning and reading skill achievement.

It should be noted that the APT measures only cognitive program objectives of a curriculum specific nature and concentrates primarily on those which are amenable to multiple choice or sentence completion format. That is, it is derived directly from program objectives and has not been subjected to the usual item analysis techniques for normed tests. Since the test is not designed to discriminate between individual children but rather to measure achievement by treatment groups of specific program objectives, the statistical techniques cited would be inappropriate for program evaluation. However, psychometric evaluation of the instrument is under way to provide a basis for its use as a normed, standardized measure.

The preliminary interview of the APT consists of a series of 11 questions which serve primarily to introduce the testing situation and to help establish rapport between the child and the tester.

Part 1 of the APT has been incorporated into the interview and is no longer administered separately. Part 2 is a 61-item, multiple-choice test, based primarily on program objectives from the first year's curriculum. Parts 3 and 4 were Piagetian conservation tasks which are no longer emphasized in the curriculum and therefore are no longer included in the APT.

Part 5 of the APT contains 18 items which measure logical reasoning, sensory discrimination and labeling, and letter recognition. Part 5 was

intended to supplement Parts 2 and 6, in that it reflected secondary program objectives not included in the remainder of the test battery. Part 6 is similar to Part 2 in format and is based on objectives taught during the second and third year of the program.

Method

During the program year which extended from September, 1970, until June, 1971, a number of cognitive objectives from the Hooper-Marshall study (1968) were selected as primary objectives of the television program, Around the Bend, and the related activities of the home visitors and mobile classroom teacher.

To measure the attainment of those objectives as well as objectives taught during previous years, Parts 2, 5, and 6 were administered in June and September, 1970, and June, 1971, to a sample of approximately 300 children in three treatment groups and to a control group of approximately 120 children. A description of the sampling procedures involved, as well as a description of each group, is included in the introduction to the total evaluation.

Analysis

APT Interview

Although the APT interview was not primarily intended as a measure of program effectiveness, an analysis of the data will be included in this report since treatment effects were apparent in the results. It includes items such as "What is your name?," and "Show me your nose?" Table 14.1 identifies APT interview pretest and post-test mean scores, standard deviations, and sample sizes for each treatment group by age and sex. Overall group means also are presented in Table 14.1, showing the scores collapsed across sex and age groups.

Overall post-test mean scores on the APT interview, adjusted for chronological age and PPVT post-test raw score, are shown graphically in Figure 14.1

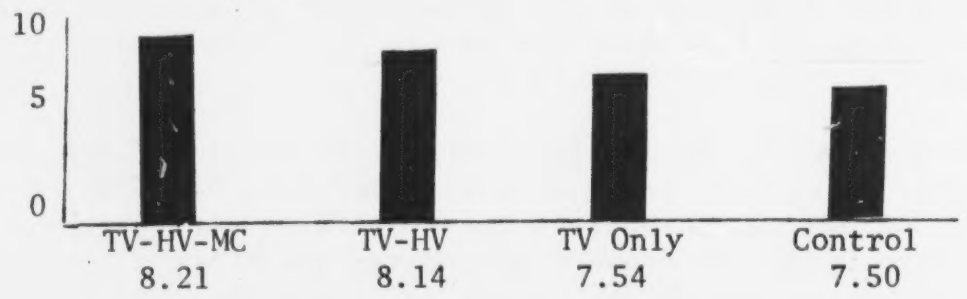

Figure 14.1

APT Interview Group Means Adjusted for PPVT Post-test Raw Score and Chronological Age

(2)

Table 14.1

Pre and Post-test Means and Standard Deviations on APT Interview
by Age, Treatment, and Sex

Age	Sex	TV-HV-MC		TV-HV		TV Only		Control	
		Pretest	Post-test	Pretest	Post-test	Pretest	Post-test	Pretest	Post-test
3	M	$\bar{x}$= 6.40 N=10 σ= 1.91	$\bar{x}$= 7.83 N=12 σ= 0.97	$\bar{x}$= 6.27 N=11 σ= 1.14	$\bar{x}$= 7.75 N= 16 σ= 1.35	$\bar{x}$= 5.90 N=11 σ= 1.16	$\bar{x}$= 6.50 N= 8 σ= 1.80	$\bar{x}$= 5.50 N= 8 σ= 2.23	$\bar{x}$= 6.71 N= 17 σ= 1.87
	F	$\bar{x}$= 6.58 N=11 σ= 1.38	$\bar{x}$= 7.62 N=13 σ= 1.00	$\bar{x}$= 6.40 N=10 σ= 1.43	$\bar{x}$= 7.56 N= 18 σ= 0.98	$\bar{x}$= 7.00 N= 5 σ= 0.63	$\bar{x}$= 7.00 N= 5 σ= 1.41	$\bar{x}$= 7.00 N= 8 σ= 1.51	$\bar{x}$= 7.26 N= 19 σ= 1.80
4	M	$\bar{x}$= 6.89 N= 9 σ= 2.03	$\bar{x}$= 7.95 N=20 σ= 1.24	$\bar{x}$= 7.00 N= 9 σ= 1.65	$\bar{x}$= 7.80 N= 25 σ= 1.52	$\bar{x}$= 6.69 N=13 σ= 2.25	$\bar{x}$= 7.50 N=14 σ= 1.18	$\bar{x}$= 6.77 N=13 σ= 1.36	$\bar{x}$= 7.60 N= 17 σ= 1.45
	F	$\bar{x}$= 8.00 N= 9 σ= 0.87	$\bar{x}$= 8.32 N=19 σ= 1.34	$\bar{x}$= 8.10 N=10 σ= 1.20	$\bar{x}$= 8.13 N= 22 σ= 1.33	$\bar{x}$= 7.00 N=10 σ= 1.79	$\bar{x}$= 7.13 N= 8 σ= 2.26	$\bar{x}$= 7.00 N=13 σ= 1.08	$\bar{x}$= 7.25 N= 17 σ= 1.22
5	M	$\bar{x}$= 7.85 N=13 σ= 1.34	$\bar{x}$= 9.06 N=16 σ= 1.52	$\bar{x}$= 8.00 N= 8 σ= 0.93	$\bar{x}$= 8.52 N= 27 σ= 1.26	$\bar{x}$= 6.88 N= 8 σ= 1.81	$\bar{x}$= 7.83 N=12 σ= 1.46	$\bar{x}$= 8.11 N= 9 σ= 1.54	$\bar{x}$= 8.00 N= 18 σ= 1.33
	F	$\bar{x}$= 7.73 N=11 σ= 1.79	$\bar{x}$= 8.33 N=15 σ= 1.66	$\bar{x}$= 7.50 N=10 σ= 0.97	$\bar{x}$= 8.82 N= 22 σ= 1.23	$\bar{x}$= 7.62 N=13 σ= 0.87	$\bar{x}$= 8.16 N=19 σ= 1.23	$\bar{x}$= 7.90 N=10 σ= 1.10	$\bar{x}$= 8.25 N= 15 σ= 1.40
TOTAL		$\bar{x}$= 7.18 N=63 σ= 1.429	$\bar{x}$= 8.21 N=95 σ= 1.28	$\bar{x}$= 6.80 N=58 σ= 1.59	$\bar{x}$= 8.12 N=130 σ= 1.30	$\bar{x}$= 6.85 N=60 σ= 1.20	$\bar{x}$= 7.55 N=66 σ= 1.51	$\bar{x}$= 7.07 N=61 σ= 1.67	$\bar{x}$= 7.59 N=105 σ= 1.54

The analysis of covariance table is shown in Table 14.2.

Table 14.2

Analysis of Covariance Table--APT Interview
Post-test Raw Scores

Source	η^{2*}	d.f.	Mean Square	F	p
Trt.	.030	3	9.79	4.15	<.001
Sex	.012	1	11.49	4.87	<.005
Trt. by Sex	.002	3	0.87	0.37	
Covs.		2	11518.30	4879.22	
Cov. 1		1	302.87	128.30	
Cov. 2		1	133.97	56.75	
Error	.954	387	2.36		

*This η^2 indicates the proportion of variance allocated among the four sources listed.

The ANCOVA shows both significant treatment effects ($p<.001$) and sex effects ($p<.005$). A Dunnett's post hoc comparison that the contrast between the TV-HV-MC group against the TV only and control groups contributed significantly to the overall treatment effect. The higher scores for the group visiting the mobile facility indicate that the objectives on the APT interview may have been emphasized on the van. Alternatively, the children may have been more at ease with the tester after being exposed to the mobile classroom, and thus more able to respond to the items on the interview. Technical Report No. 18, which deals with social skills development, indicates that children on the van initiated more constructive behavior, which substantiates the former hypothesis.

Table 14.3 shows mean scores on the APT interview by sex for the three treatment groups and one control group. As is evident, neither sex consistently outscored the other. The tendency for males in the TV-HV-MC group to outscore their female counterparts occurs frequently across the instruments used to evaluate the program effects. This may reflect sampling error not removed by covariance or a differential degree of learning taking place on the mobile classroom.

Table 14.3

APT Interview Mean Scores by Sex and Treatment Group

	TV-HV-MC	TV-HV	TV Only	Control
Males	8.29	8.07	7.38	7.48
Females	8.13	8.18	7.72	7.70

APT Part 2

Part 2 of the APT is a multiple choice subtest of 61 items developed during the first year's programming (1968-69). It consists of a variety of items, with the following numbers of items comprising the total: vocabulary (noun designation) - 15 questions; relational terms - 14 questions; letter and number recognition - 6 questions; mathematical sets - 4 questions; geometric shape - 4 questions; and beginning and ending sounds - 8 questions; the balance of the test is devoted to body part identification, calendar dates, and time related terms.

Table 14.4 indicates the treatment group by age and sex cells for APT Part 2. The overall means are also presented in Table 14.4, showing the scores collapsed across sex and age groups.

The overall post-test means from the analysis of covariance adjusted for chronological age and PPVT raw score are presented graphically in Figure 14.2.

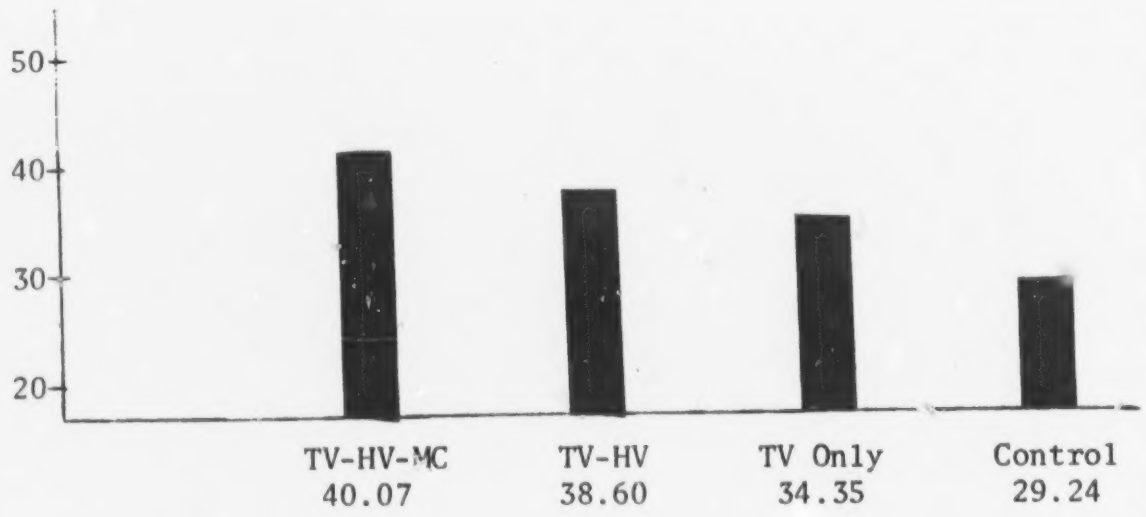

Figure 14.2

Overall Means Adjusted for PPVT Post-test Raw Score and Chronological Age for APT Part 2

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Table 14.4

Pre and Post-test Means, N's, and Standard Deviations,
Age by Treatment by Sex Cells for APT Part 2

Age	Sex	TV-HV-MC		TV-HV		TV Only		Control	
		Pretest	Post-test	Pretest	Post-test	Pretest	Post-test	Pretest	Post-test
3	M	$\bar{x}$-22.70 N=10 σ= 8.63	$\bar{x}$=32.42 N=12 σ=10.53	$\bar{x}$=25.17 N=11 σ= 4.88	$\bar{x}$= 31.44 N= 16 σ= 7.86	$\bar{x}$=23.27 N=11 σ= 7.94	$\bar{x}$=27.88 N= 8 σ= 5.84	$\bar{x}$-21.88 N= 8 σ= 4.17	$\bar{x}$= 24.00 N= 17 σ= 6.31
	F	$\bar{x}$=22.09 N=11 σ= 5.82	$\bar{x}$=32.85 N=13 σ= 9.22	$\bar{x}$=21.70 N=10 σ= 6.90	$\bar{x}$= 30.83 N= 18 σ= 8.99	$\bar{x}$=22.40 N= 5 σ= 4.59	$\bar{x}$=26.80 N= 5 σ= 7.60	$\bar{x}$=23.57 N= 8 σ= 3.50	$\bar{x}$= 24.74 N= 19 σ= 9.17
4	M	$\bar{x}$=25.75 N= 9 σ= 5.12	$\bar{x}$=40.75 N=20 σ= 8.36	$\bar{x}$=26.00 N= 9 σ= 7.04	$\bar{x}$= 36.40 N= 25 σ= 10.93	$\bar{x}$=22.69 N=13 σ= 6.30	$\bar{x}$=37.43 N=14 σ= 6.90	$\bar{x}$=24.15 N=13 σ= 5.97	$\bar{x}$= 29.37 N= 17 σ= 8.45
	F	$\bar{x}$=25.13 N= 9 σ= 7.51	$\bar{x}$=41.47 N=19 σ= 6.99	$\bar{x}$=29.10 N=10 σ= 9.55	$\bar{x}$= 39.43 N= 22 σ= 9.92	$\bar{x}$=20.00 N=10 σ= 4.62	$\bar{x}$=30.38 N= 8 σ=13.31	$\bar{x}$=26.46 N=13 σ= 5.24	$\bar{x}$= 26.85 N= 17 σ= 7.03
5	M	$\bar{x}$=33.23 N=13 σ= 8.03	$\bar{x}$=48.69 N=16 σ= 8.58	$\bar{x}$=36.25 N= 8 σ= 8.26	$\bar{x}$= 43.67 N= 27 σ= 8.11	$\bar{x}$=22.88 N= 8 σ= 5.19	$\bar{x}$=36.67 N=12 σ=12.55	$\bar{x}$=27.56 N= 9 σ= 6.74	$\bar{x}$= 34.25 N= 18 σ= 9.55
	F	$\bar{x}$=32.27 N=11 σ= 7.89	$\bar{x}$=44.47 N=15 σ= 7.86	$\bar{x}$=32.00 N=10 σ= 7.36	$\bar{x}$= 45.27 N= 22 σ= 7.96	$\bar{x}$=28.08 N=13 σ= 5.45	$\bar{x}$=44.16 N=19 σ=12.24	$\bar{x}$=33.30 N=10 σ= 8.45	$\bar{x}$= 40.75 N= 15 σ= 7.14
TOTAL		$\bar{x}$=26.19 N=63 σ= 6.970	$\bar{x}$=40.68 N=95 σ= 8.53	$\bar{x}$=23.48 N=58 σ= 5.60	$\bar{x}$= 30.50 N=130 σ= 9.10	$\bar{x}$=23.52 N=60 σ= 7.66	$\bar{x}$=35.32 N=66 σ=10.58	$\bar{x}$=26.27 N=61 σ= 6.42	$\bar{x}$= 29.87 N=105 σ= 8.09

The ANCOVA table for Part 2 of the APT is presented in Table 14.5

Table 14.5

Analysis of Covariance Table for APT Part 2
Post-test Raw Score

Source	η^2	d.f.	Mean Square	F	p
Trt.	.11	3	908.54	16.50	<.005
Sex	.02	1	377.14	6.85	<.005
Trt. by Sex	.00	3	21.77	0.40	
Covs.		2	253138.35	4597.62	
Cov. 1		1	1159.94	21.07	
Cov. 2		1	10334.26	187.70	
Error	.87	387	55.06		

The treatment effect which is evident from the ANCOVA table is clarified by the results of a Dunnett's post hoc analysis. The TV-HV-MC and TV-HV group shared significantly higher scores than TV only and control groups but did not differ from each other. The TV only group also scored significantly above the control group. These findings point to the conclusion that the television program made a contribution to the overall cognitive growth of the child, and that the home visitor added to this growth. The mobile facility did not appear to be contributing to this area of learning, however.

The significant sex effect apparent in the covariance analysis is due to a generally higher score for females in the 3- and 4-year-old categories across all treatments, although 5-year-old males in the TV-HV-MC group outscored their female counterparts on this section of the APT and other measures. It may well be that the younger girls became more responsive to learning situations as they progressed through the program, while their exposure to the mobile facility enabled boys to continue their involvement in the program's objectives.

Table 14.6 indicates mean gain scores on Part 2 of the APT by treatment, sex and age.

Table 14.6

Mean Gain Scores, APT Part 2, by Age and Treatment

		TV-HV-MC	TV-HV	TV	Control
3	M	6.83	6.86	1.57	1.33
	F	11.75	4.71	16.00	1.29
4	M	20.40	11.14	13.88	8.13
	F	14.86	11.11	12.00	.25
5	M	12.00	10.82	14.00	8.00
	F	9.75	13.93	9.57	7.00

An analysis of covariance using age and PPVT raw score as covariates, indicated the presence of a treatment effect ($p<.005$) in these gain scores. No sex effect was present. Generally, the TV-HV-MC group showed the highest overall gains in the 3- and 4-year-old groups, while among 5-year-olds, gains tended to be uniform across the three treatments.

APT Part 5

Part 5 of the APT was not derived from a separate listing of program objectives but instead was elicited from the curriculum materials team as

a supplement to Part 2 of the APT. Part 5 of the APT is a verbally oriented measure of cause and effect relations and reading skills.

Table 14.7 indicates pretest and post-test means, standard deviations, and sample size for each treatment group by age and sex cells for APT Part 5. The overall means also are presented in Table 14.6, showing the scores collapsed across sex and age groups.

The overall post-test means from the analysis of covariance adjusted for chronological age and PPVT raw score are presented graphically in Figure 14.3.

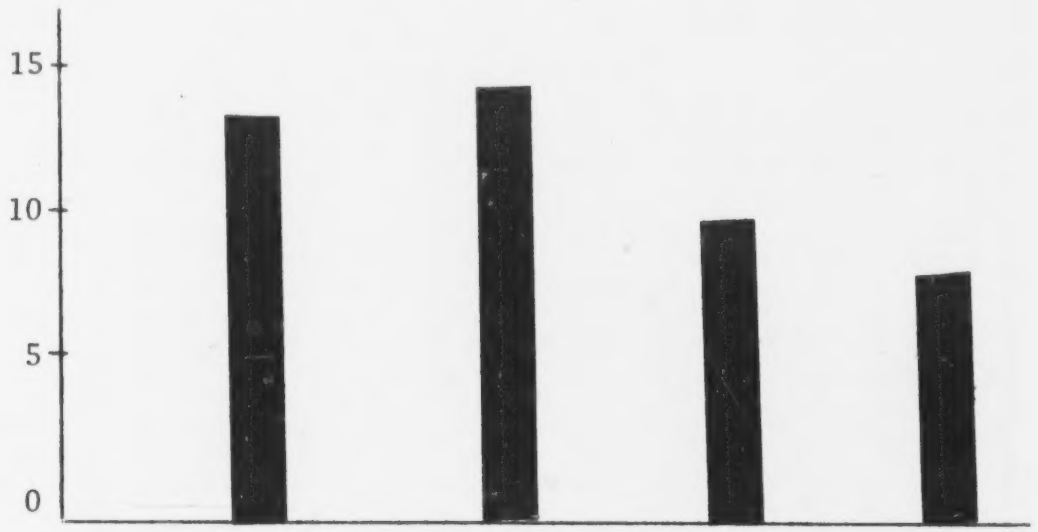

Figure 14.3

Overall Means Adjusted for PPVT Post-test Raw Score and Chronological Age for APT Part 5

Table 14.7

Pre and Post-test Means, N's, and Standard Deviations
Age by Treatment by Sex Cells for APT Part 5

Age	Sex	TV-HV-MC		TV-HV		TV only		Control	
		Pretest	Post-test	Pretest	Post-test	Pretest	Post-test	Pretest	Post-test
3	M	$\bar{x}$= 4.90 N=10 σ= 3.39	$\bar{x}$=10.17 N=12 σ= 4.52	$\bar{x}$= 5.08 N=11 σ= 1.71	$\bar{x}$= 9.81 N= 16 σ= 3.34	$\bar{x}$= 6.36 N=11 σ= 1.22	$\bar{x}$= 6.63 N= 8 σ= 3.74	$\bar{x}$= 5.63 N= 8 σ= 2.69	$\bar{x}$= 6.54 N= 17 σ= 2.09
	F	$\bar{x}$= 7.00 N=11 σ= 2.12	$\bar{x}$= 9.92 N=13 σ= 3.20	$\bar{x}$= 5.80 N=10 σ= 1.89	$\bar{x}$= 9.50 N= 18 σ= 3.32	$\bar{x}$= 7.60 N= 5 σ= 2.24	$\bar{x}$= 8.20 N= 5 σ= 3.19	$\bar{x}$= 7.29 N= 8 σ= 3.10	$\bar{x}$= 6.95 N= 19 σ= 3.33
4	M	$\bar{x}$= 9.00 N= 9 σ= 3.76	$\bar{x}$=13.95 N=20 σ= 9.47	$\bar{x}$= 8.89 N= 9 σ= 3.95	$\bar{x}$= 12.16 N= 25 σ= 5.59	$\bar{x}$= 6.46 N=13 σ= 2.67	$\bar{x}$=12.14 N=14 σ= 3.27	$\bar{x}$= 7.23 N=13 σ= 3.72	$\bar{x}$= 8.32 N= 17 σ= 3.27
	F	$\bar{x}$= 9.44 N= 9 σ= 2.92	$\bar{x}$=13.53 N=19 σ= 3.10	$\bar{x}$=11.20 N=10 σ= 5.12	$\bar{x}$= 13.39 N= 22 σ= 4.30	$\bar{x}$= 6.70 N=10 σ= 1.95	$\bar{x}$= 9.25 N= 8 σ= 7.10	$\bar{x}$= 7.92 N=13 σ= 3.09	$\bar{x}$= 7.30 N= 17 σ= 3.16
5	M	$\bar{x}$=10.07 N=13 σ= 2.63	$\bar{x}$=15.81 N=16 σ= 5.56	$\bar{x}$=11.13 N= 8 σ= 3.44	$\bar{x}$= 14.85 N= 27 σ= 4.05	$\bar{x}$= 8.13 N= 8 σ= 2.90	$\bar{x}$=10.75 N=12 σ= 5.46	$\bar{x}$= 9.22 N= 9 σ= 2.77	$\bar{x}$= 10.44 N= 18 σ= 2.45
	F	$\bar{x}$= 9.90 N=11 σ= 4.83	$\bar{x}$=14.33 N=15 σ= 4.08	$\bar{x}$=11.00 N=10 σ= 3.89	$\bar{x}$= 18.32 N= 22 σ= 13.33	$\bar{x}$= 9.46 N=13 σ= 3.97	$\bar{x}$=15.05 N=19 σ= 4.93	$\bar{x}$=12.10 N=10 σ= 3.57	$\bar{x}$= 11.88 N= 15 σ= 3.20
TOTAL		$\bar{x}$= 8.18 N=63 σ= 3.160	$\bar{x}$=13.21 N=95 σ= 5.71	$\bar{x}$= 6.87 N=58 σ=2.58	$\bar{x}$= 13.30 N=130 σ= 4.16	$\bar{x}$= 7.45 N=60 σ= 3.65	$\bar{x}$=11.41 N=66 σ= 4.82	$\bar{x}$= 8.27 N=61 σ= 3.44	$\bar{x}$= 8.63 N=105 σ= 2.95

The ANCOVA summary table for APT Part 5 is reproduced below in Table 14.8.

Table 14.8

Analysis of Covariance Table for APT Part 5
Post-test Raw Score

Source	η^2	d.f.	Mean Square	F	p
Trt.	.07	3	270.26	10.01	<.005
Sex	.04	1	161.76	5.99	<.025
Trt. by Sex	.01	3	23.95	0.89	
Covs.		2	26946.55	997.93	
Cov. 1		1	15.34	0.57	
Cov. 2		1	1622.19	60.08	
Error	.91	387	27.00		

A Dunnett's post hoc comparison indicated that all three treatment groups significantly outscored the control group. No significant differences were evident among treatments. This suggests that the television program alone was responsible for the differences among means which were evident on this measure.

The sex difference ($p<.025$) evident from the analysis of covariance indicates that females generally outscored their male counterparts on this instrument, with the exception that in the TV-HV-MC group males tended to outscore females.

Analysis of covariance on gain scores indicated that a significant treatment effect ($p<.01$) occurred on overall learning in this area. The groups receiving paraprofessional visitation outscored their counterparts in the other groups in terms of gain scores. Thus, an examination of only post-test scores tends to obscure the effect of the paraprofessional in promoting an increased rate of learning of the objectives sampled by this subtest.

APT Part 6

Part 6 of the APT is a 61-item test which was developed during the third program year to measure objectives which had been taught but not adequately sampled in other parts of the APT. It is similar in format and content to Part 2 of the APT.

Table 14.9 indicates post-test cell means, N's, and standard deviations for Part 6 of the APT as well as total post-test means for each treatment group.

Table 14.9

Post-test Means, N's, and Standard Deviations, Age by Treatment by Sex Cells for APT Part 6
(Pretest not available)

Age	Sex	TV-HV-MC	TV-HV	TV only	Control
3	M	$\bar{x}$=32.42 N=12 σ=11.54	$\bar{x}$= 31.50 N= 16 σ= 14.28	$\bar{x}$=19.00 N= 8 σ= 5.27	$\bar{x}$= 20.82 N= 17 σ= 8.17
	F	$\bar{x}$=36.38 N=13 σ= 8.18	$\bar{x}$= 34.72 N= 18 σ= 11.10	$\bar{x}$=21.00 N= 5 σ= 9.32	$\bar{x}$= 22.21 N= 19 σ= 10.94
4	M	$\bar{x}$=40.85 N=20 σ=12.32	$\bar{x}$= 37.68 N= 25 σ= 12.65	$\bar{x}$-39.36 N=14 σ=11.15	$\bar{x}$= 25.68 N= 17 σ= 9.88
	F	$\bar{x}$=45.58 N=19 σ= 8.60	$\bar{x}$= 45.39 N= 22 σ= 9.70	$\bar{x}$=24.13 N= 8 σ=15.27	$\bar{x}$= 28.20 N= 17 σ= 9.11
5	M	$\bar{x}$=50.94 N=16 σ= 6.70	$\bar{x}$= 47.11 N= 27 σ= 8.54	$\bar{x}$=35.58 N=12 σ=13.69	$\bar{x}$= 33.78 N= 18 σ= 8.46
	F	$\bar{x}$=47.53 N=15 σ= 9.18	$\bar{x}$= 47.59 N= 22 σ= 8.63	$\bar{x}$-44.16 N=19 σ=10.78	$\bar{x}$- 40.75 N= 15 σ= 7.11
TOTAL		$\bar{x}$=42.87 N=95 σ= 9.67	$\bar{x}$= 41.35 N=130 σ= 10.80	$\bar{x}$=34.35 N=66 σ=11.49	$\bar{x}$= 28.99 N=105 σ= 9.10

The overall post-test means from the analysis of covariance adjusted for chronological age and PPVT raw score for APT Part 6 are presented graphically in Figure 14.4.

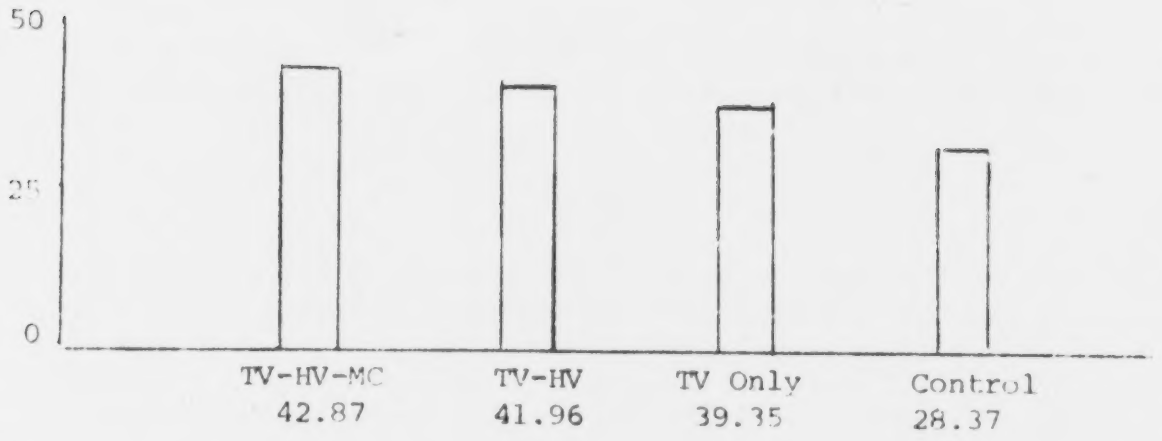

Figure 14.4

Overall Means Adjusted for PPVT Post-test Raw Score and Chronological Age for APT Part 6

The ANCOVA summary is reproduced below in Table 14.10.

Table 14.10

Analysis of Covariance Table for APT Part 6
Post-test Raw Score

Source	η^2	d.f.	Mean Square	F	p
Trt.	.95	3	2163.49	26.74	<.005
Sex	.00	1	1173.92	21.93	<.005
Trt. by Sex	.00	3	25.73	0.32	
Covs.		2	268251.74	3316.04	
Cov. 1		1	564.75	6.98	
Cov. 2		1	13415.22	165.83	
Error	.05	387	80.90		

A Dunnett's post hoc analysis indicates that the treatment effect apparent from Table 14.10 stems from contrasts among the groups receiving visits from the paraprofessional and those which do not, as well as from differences between the TV only and control groups. Thus, the television program seemed to be providing a basic level of learning for the children which was substantially increased by the paraprofessional.

The sex effect which was apparent on this subtest with one exception favored the females over all ages and treatments. Male 5-year-olds in the TV-HV-MC group outscored their female counterparts here, as they did on the remainder of the APT. As was suggested earlier, the van may well be functioning to make males more responsive to the program's learning environment.

Pretest scores on Part 6 of the APT are not available, since that part of the instrument was developed during the third year of the program.

Summary

All subtests of the curriculum specific measure (APT) administered during the third year of the program's development indicate significant treatment effects for the groups viewing the television program and visited by the paraprofessional. The van appeared to have an effect on the child's ability to establish rapport with the tester and seemed to be increasing the involvement of older boys in the program's objectives.

Overall, it seems likely that the paraprofessional made the largest contribution to the objectives measured by the APT. The groups which were exposed to the home visitor successfully answered more than thirty items (and corresponding objectives) over their counterparts in the control group in terms of total APT scores. Table 14.11 indicates total APT scores combining Parts 2, 5, 6 and the interview.

Table 14.11

Sum of APT, Interview, Parts 2, 5 and 6

TV-HV-MC	TV-HV	TV	Control
104.97	101.98	93.62	74.37

An analysis of the data from the third year's evaluation reinforces conclusions reached in evaluations of the two previous years--that is, the television program provides the "raw material" for the curriculum, while the home visitor effectively reinforces the program's cognitive objectives.

It should be noted that although no significant differences were evident for the group visited by the mobile facility, this may be due to the variance in attendance on the mobile facility within the group designated as "TV-HV-MC." A t-test indicated that children who visited the mobile classroom more than 60 percent of the time when it was available significantly outscored those who attended less than 40 percent of the time on APT Part 6 ($\bar{x}_1$=44, $\bar{x}_2$=37, t=2.40). Thus, attendance on the van does seem to be related to learning of cognitive objectives.

(14)

References

Hooper, Frank H. and William H. Marshall. The Initial Phase of a Curriculum Development Project - Final Report (Charleston, W.Va.: Appalachia Educational Laboratory, August, 1968).